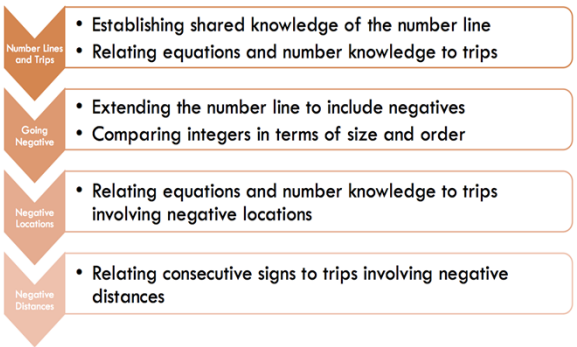
Investigating Children's Developing Integer Reasoning

Study

This classroom teaching experiment investigated how children can meaningfully reinvent integer arithmetic through engagement in a sequence of novel mathematical tasks in a class emphasizing communication and argumentation.

Results

This study focused on learning as a phenomenon that occurs through the evolution of collective mathematical activity in a classroom community. I documented an actualized learning trajectory in the form of a sequence of classroom mathematical practices. These describe distinct phases or milestones in the evolution of collective activity:



Interesting Findings

There are points in the sequence at which students make opposing arguments that are both viable.

This presents challenges in terms of the class reaching meaningful resolutions.

The theme of communication often helped to facilitate resolution.

Next Steps

I recently gave presentations at the NCTM Research Conference, as well as the CORE Conference. Design research proceeds iteratively through teaching experiments and analysis. Planning for the next teaching experiment is in the works.

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